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Cœliotomy

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COUNTER-DRAINAGE AFTER CÆLIOTOMY.

BY

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COUNTER-DRAINAGE AFTER CÆLIOTOMY.¹

THE importance of drainage after cœliotomy has been fully demonstrated by the vast majority of operators in this field of surgery. But the desire to do without drainage in cœliotomy is even more pronounced to-day than ever before. The fact of its importance is, however, manifest and accepted, because we have all seen cases which have recovered after operations when drainage was practised, and which we knew would, twenty years ago, have resulted in death. We know, too, as well as we know anything which we demonstrate by actual practice, that deaths in these cases, before we resorted to drainage, were the direct result of the retention of such fluids remaining in the peritoneal cavity, as the gauze and the drainage tube now assist in removing. Actual demonstration in the effects of such putrefactive conditions upon living tissue, is sufficient proof of my statement. Granted that drainage implies the unsatisfactory operation, the non-surgical operation, still all surgeons who have much of this work to do, known that occasionally they are called upon to operate, when, if all should be done by the knife, or scissors, or finger, which might be desired to make a *perfect* operation, the patient would not *survive* the operation. All honest surgical work implies pathological changes in endless variety, and we must not expect to have one universal law to govern all cases. The best surgical rule, however, is always to do the best we can with each individual case, never forgetting that Nature is a good mother, and will help us out of many difficulties, if we do not feed her on deadly ptomaines supplied from the putrefactive changes which result from retained fluids, or dead tissue. The wise surgeon of to-day fully understands this fact, and he is prepared to close the abdominal wound without drainage, if such a course seem judicious. Or he will insert a gauze, or a glass tube, if there are strong indications that there will be much sweating from peritoneal adhesions, or

¹Read before the Clinical Society, February 11th, 1893.

considerable oozing of blood from small vessels in the Douglas' pouch peritoneum, after enucleating from this region, or when there seems a positive evidence that there will be a purulent discharge from the bed of an ovarian abscess, or degenerating broad-ligament cyst, or pus tube.

It is of deep interest to me, and I doubt not it will be to you, to note how we have gradually come up to our present knowledge in this important matter of drainage after abdominal operations. As long ago as 1855¹ Peaslee passed a rubber drainage tube from the vagina upward through the posterior fornix, and into the abdominal cavity, at the lower point of Douglas' pouch, and out through the lower angle of the wound in the abdomen. He tied, or corked, both ends of this tube. At the expiration of five days symptoms of septicæmia appeared, and he washed out the lower pelvic cavity through this tube, using about a one-per-cent solution of chloride of sodium. His patient recovered. How near he came then to grasping the glorious results of aseptic surgery, in this new method, is a marvel. It would almost seem that, if the curtain of the future could have been lifted but a little, he would, with his clear vision, have taken in the whole beauty and glory of the aseptic work of to-day—a work which tries as successfully to *prevent* septicæmia, as he did, in this and other cases, to cure it when it appeared.

His second case occurred in 1863.² His drainage tube was not called into use until the eighth day, but from that time on he and his assistants washed out the pelvic cavity of this patient through this drainage tube daily, for fifty-nine days. Pus then ceased to flow, and the tube was removed and the sinus allowed to close.

How delighted would Dr. Peaslee have been could the Johns Hopkins report³ have been placed before him then! He would have seen that secondary infections from drainage tubes had been demonstrated as a fact, and he would have classed this case in such a list. The germ theory of disease was only just beginning to be worked out by a very few; and Peaslee did not realize that when no symptoms of fever came on by the fourth or fifth day, a drainage tube was a source of *danger* from *without*, instead of a *safety valve* from *within*.

His third case occurred in 1864,⁴ and recovered. He speaks, however, in a prophetic voice when, in the *American Journal of*

¹ American Journal of the Medical Sciences, 1856.

² Ibid., April, 1863.

³ Vol. ii., No. 84, p. 192, 1890.

⁴ See American Journal of the Medical Sciences, July, 1864.

Obstetrics, vol. iii., No. 2, he says, and also in *American Journal of the Medical Sciences*, July, 1864: "I had been able thus far only to remove septicæmia, and I now propose in all my subsequent cases, if possible, to *prevent it*. This I propose to do in every case of ovariectomy in which I cannot feel quite positive that no blood, ascitic fluid, pus, or fluid from ovarian tumor could remain, or collect, in the peritoneal cavity after the operation." He recommends a tent, to remain undisturbed till the fourth day, if no symptoms occur to demand an earlier withdrawal; when it is to be withdrawn, and the cavity examined for the presence of fluid, the examination to determine whether the opening should be closed, or the injection be commenced.

Robb,¹ in a very exhaustive article on the history of drainage, says that Chassaignac, of Paris, in 1859, settles the principles of drainage upon a broad and scientific basis, and is therefore generally accounted the discoverer of the same. The rubber drain was first used there. But, as we know, Dr. Peaslee practised this method and published his results four years prior² to the date of Chassaignac's treatise.

There is no question of the great step in advance which Peaslee took when he advocated this method for curative purposes only, although he had not grasped the great facts which burst upon us a little later when Lister unfolded his germ theory of disease. Had Peaslee been educated in the principles of asepsis, so far as to have prepared the vagina in an absolutely aseptic condition before introducing his tube, he would have saved undoubtedly fifty per cent of all the cases which died, after he began to practise drainage through the vagina. But his method taught us that septicæmia and death generally come from the retention of decomposing fluids in the abdominal cavity, and it led us up to the willing acceptance of Koeberlé's method of glass-tube drainage for prophylactic purposes.

It is of interest to all of us to know that these early trials of different methods of drainage were almost wholly confined to American surgeons. Peaslee, in 1855, first practised it through the vagina, then through the lower angle of the wound in the abdomen, by means of cotton. Then Koeberlé introduced the glass drainage tube through the abdominal wound. Then Sims advocated either vaginal or abdominal drainage, in almost every case.³ But, for some cause which we can hardly understand, he had poor

¹ Johns Hopkins Hospital Report, vol. ii., Nos. 3 and 4.

² American Journal of the Medical Sciences, 1856.

New York Medical Journal, 1872-73.

success, and he soon changed to drainage through the abdominal wound alone, only in very bad cases. Then Kehrer, in 1882, recommended lampwick packing in the opening. Finally Mikulicz, in 1886, advocated packing thoroughly, with strong iodoform gauze, the septic cavity, or space around the pedicle, or the nest from which the tumor had been enucleated, and making a column directly up to and through the abdominal wound; and a vast number of patients have been saved by this method of treatment, who undoubtedly would have died if any other known practice had been followed.

Martin¹ has advocated drainage through the vagina, and he frequently refers to this method. He was so accustomed to having his patients prepared for vaginal hysterectomy, that it is not strange that he would drain in this way. All of his earlier operations were drained by this method. He claims that there is but slight danger if proper antiseptic precautions have been made in the vagina. Such a procedure, he says, has given him good satisfaction in nine cases out of ten.

Fenger² believes that vaginal drainage—mechanical, of course—is the most rational method because it drains best.

Pozzi³ advocates the drainage through the vagina. He uses the cross rubber drainage tube. He gives careful directions, and pictures the forceps for inserting the drainage tube.

Peaslee, as mentioned before, had three successful cases before 1864. Probably no other surgeon would have saved all three patients at that time, if they had not resorted to drainage in this manner.

Noeggerath⁴ relates a case of large multilocular ovarian cyst attached to the broad ligament, with a very short, thick pedicle requiring much effort to ligate. There was such an angry bleeding condition around this unusual pedicle, that he opened Douglas' pouch to allow drainage, and saved the patient.

I do not propose to criticise, or advocate, any particular method of drainage through the abdominal wound. I wish to call attention to certain typical cases, or classes of cases, and to recommend counter-drainage through the vagina, instead of draining through the front wound, as generally practised. And first let us look at some of the dangers of, and objections to, the drainage tubes, or gauze, through the abdominal wound. There are, of course, cer-

¹ Second American edition, p. 426.

² American Journal of Obstetrics, July, 1887, p. 770.

³ William Wood & Co.'s edition, vol. i., p. 71.

⁴ American Journal of Obstetrics, November, 1872, p. 477.

tain objections to any method which does not allow of a quick, sure, and strong union of the abdominal wound.

1. Gauze, or a drainage tube, in the abdominal wound prevents the union of the muscle or fascia, and therefore makes it possible for a hernia at the site of the tube or the gauze. The sinus thus made is often slow to heal after the withdrawal of the tube or gauze, and is the source of much annoyance, often remaining for months or years, and becoming a source of further infection.

A glass drainage tube has often been the direct cause of injury to the intestine, and a fecal fistula has resulted. I need not cite cases; we have all seen or known of many. This accident is a most annoying and humiliating condition, and a surgical operation to cure the fistula is always dangerous.

2. If the Mikulicz gauze column is used, there will be a large sinus when the material has been withdrawn, and this sinus will be proportionately tedious to heal, and of course leaves an ugly cicatrix, often a weak one, and sometimes during the first two weeks allows infection to pass down and infect the ligatures, and thus keep up a constant septic condition for months.

The advantages of drainage through Douglas' pouch into the vagina seem theoretically correct, and in my own hands have proved clinically so. Douglas' pouch is the lowest portion of the peritoneum, and why should we not drain through it into the vagina, the channel most easily reached, and below the lowest portion of the wound?

There is no possible reason to-day why we should not drain in this direction. Until recently, through fear of secondary septic infection from the vagina, only the brave surgeons have resorted to this method. But when we remember that the vagina can be made absolutely aseptic, and always should be made thoroughly aseptic before any abdominal operation is attempted, we need not hesitate to use this channel for drainage. An opening through Douglas' pouch is the most natural course for the fluid to drain through in its passage from the body. A small per cent of the tumors which we find at the present time, are situated in the broad ligament, or are diseased, adherent tubes; or the tumor is lodged in Douglas' pouch, and the distance into the vagina is less than one-half inch. Good surgery urges us to drain in that direction, if you desire to drain at all. Drainage through the vagina is not only the nearest and easiest way for the fluid to escape, but it is less offensive to the patient, and requires less care on the part of the surgeon during the first ten days. The gauze in the vagina can be easily withdrawn a few inches on the first or second day, and at once free

drainage is encouraged and established. The vagina can then be irrigated with a germicide fluid, as often as may seem necessary, or a packing of iodoform gauze can be inserted. In either case it is quickly and safely done; and this course can be followed until the eighth or tenth day, when all the gauze can be withdrawn from the sinus, and only the daily vaginal douching be continued afterward.

Of course it is possible for the sinus to close before all of the pyogenic membrane has been forced downward to the vaginal end of the sinus (see my first case). The patient, if this occurs, must be placed on the table and the sound introduced, and a drainage tube inserted, and kept *in situ* by means of the cross-bar at the top, or by suturing in the vagina.

I am sure we can watch these cases for two weeks, if the earlier surgeons could wash out the cavity daily for two months. There are those who advocate drainage much more persistently than others, but all agree that in certain cases you must establish drainage. Greig Smith¹ says, "When in doubt, drain," while Barr² adds two words to this axiom, and it reads, "When in doubt, *do not* drain." But the judicious surgeon knows that with drainage the patient will be saved; without it, she will surely die.

The question is not, therefore, "Shall I drain?" but rather, "Which method of drainage is the best when *it is required?*" For myself, I have practised vaginal drainage, and advocate it in all cases of: 1. *Suprapubic hysterectomy*, whenever the entire cervix is removed, or whenever it is considered safe to drain at all, even if the vaginal cervix is not removed. This custom is so universally followed by every wise abdominal surgeon, that it requires no illustrative cases of mine to emphasize the necessity of its practice.

2. *Ovarian abscesses, and small suppurating ovarian cysts* which are firmly adherent to the broad ligament, or which have developed up under the broad ligament, after the ovary has been displaced backward and downward, and become embedded in a firm exudate. These abscesses have their bed very near the vagina and very far from the abdominal wound. To illustrate:

CASE I.—Mrs. H. entered the Woman's Hospital November 23d, 1891; German; forty-one years; married; never pregnant. Been under treatment in outdoor department by Dr. Winchester. Has had pelvic pains, with more or less regularity, for six months, often fever, and two decided chills.

Physical examination revealed uterus pushed to the right, and a tense but slightly fluctuating mass in the region of the left broad

¹ See "Abdominal Surgery," p. 121.

² Clinical Lecture, p. 10.

ligament, closely attached to the ligament. No bulging into the vagina. Operation for removal January 7th, 1892, assisted by Dr. Talbot and the house staff. A suppurating cyst was found developing from her left ovary, and, on account of the exudation from the several attacks of inflammation, it had crowded downward into the left broad ligament; fully a third of the tumor lay in a nest formed in this broad ligament. The cyst wall was friable and its contents of exceedingly offensive odor. The cavity was thoroughly irrigated. The free portion of the cyst was removed with the fingers and scissors. The remaining portion would have had to be curetted out, and the parts drained by a column of iodoform gauze—Mikulicz's method—had I not decided to drain directly into the vagina, which was less than a half-inch from the lowest portion of the cyst. I passed the first and second fingers of my left hand into the vagina, and, pressing upward against the left broad ligament, I passed a pair of sharp forceps directly downward between my two fingers in the vagina. I then opened the forceps and thus dilated the track of the forceps. After irrigating the cavity thoroughly with sterilized water, I passed, by means of a pair of forceps, one end of a two-inch roll of iodoform gauze from above downward into the vagina.

The proximal end was carefully laid in the bed of the cyst and the abdomen closed. There was considerable pain and a temperature of 102° on the second day, and I requested the house surgeon to irrigate the vagina with 1 : 4000 bichloride and draw down the gauze a few inches. He did not understand my meaning and drew it all out. The patient did well for ten days, when, because of septic symptoms, I was obliged to reopen the sinus from the vaginal end, and this time a rubber drainage tube was introduced and kept in place for several weeks. She finally recovered, and was discharged cured on March 20th, 1892.

CASE II.—Mrs. K., an actress, entered my private sanatorium December 20th; thirty years old; married. I found a fluctuating tumor in the region of the left broad ligament. I operated December 21st, assisted by Drs. Tull and Purdy. The tumor proved to be a suppurating ovarian cyst the size of a mandarin orange, completely embedded in the left broad ligament and an exudation. Through a slit in the broad ligament the pus was pressed into a sponge. A passage was made from the base of this cavity into the posterior fornix of the aseptic vagina (I insist upon having the vagina aseptic in all *cœliotomy* cases), the parts irrigated with sterilized water, from above downward through the vagina. One end of the gauze was passed through into the vagina. The cavity was

packed carefully with gauze. The wound in the broad ligament was closed with a running No. 2 catgut suture. However, before closing the wound in the broad ligament, I found the tube on this side contained pus. I tied and removed it in the usual manner, and the stump I carefully turned into the cavity of the cyst and fastened to the edge of wound in the broad ligament. Thus the cavity of the abdomen was carefully shut off from the cavity of the cyst. The end of the gauze in the vagina was drawn down a few inches daily; there was a free drainage into the vagina whenever the gauze was moved. The pulse and temperature never went above 100°, and she was discharged cured on the twenty-eighth day.

3. *Broad-ligament cysts* (parovarian cysts) which develop downward toward the vagina. When these tumors are inflamed they are often filled with a purulent or semi-purulent fluid, and should be drained by means of gauze through the vagina, if they are not opened and packed directly from the vagina. But when the abdomen is once opened, and the tumor is found to be of this character, drainage should be established through the vagina.

4. *Dermoid cysts with large base*, and adherent to broad ligament, or impacted in Douglas' pouch. If much enucleation is necessary they should be drained through Douglas' pouch into the vagina. I can recall one death which most certainly could have been prevented, had drainage been practised with gauze through Douglas' pouch, instead of the abdominal wound.

5. *Ovarian cysts*, which have broad, thick pedicles, with the peculiar friable, angry appearance of incipient malignant degeneration. Often the true pedicle cannot be found, and it requires great patience to enucleate and remove the large amount of solid matter low down in the pelvis. Such cases are far more safe if drained through the vagina. I have had two such cases within the last six months.

The first was Mrs. F. G., age forty-seven; United States; married; never pregnant; tumor been growing for three years or more. Entered my private sanatorium October 20th, 1892. Tumor so large as to be exceedingly uncomfortable. Patient very anæmic, and states that she has emaciated rapidly during last few months.

Operation October 21st, Drs. Polk, Tull, and Purdy assisting. The tumor proved to be an immense multilocular ovarian cyst with a very large amount of solid matter, which was very friable and exceedingly malignant-looking, and filled Douglas' pouch completely. It was difficult to remove all this growth, and, after irrigating thoroughly, a Mikulicz gauze packing was introduced. She rallied well,

and the gauze drained freely. At the end of six days it was all removed, when the sinus was found to extend to within a half-inch of the posterior vaginal fornix, and a long, slightly curved trocar, covered and protected by an intra-uterine hard-rubber irrigating tube, was passed from above downward, and a passage was made into the vagina. After irrigation, gauze was inserted. Later a rubber drainage tube was drawn in by means of the gauze. Later the rubber was dropped nearly to the bottom of Douglas' pouch, and later still entirely removed. She is in perfect health and regaining her former weight at the present time.

The second case of this character was Mrs. M., age forty-two; married; never pregnant; admitted to my service in Woman's Hospital, November 7th, 1892. She had been sick seven months with the tumor. I believed the tumor to be cystic, with a large amount of solid matter around the pedicle.

Operation by Dr. R. B. Talbot, assistant surgeon, in my presence, on November 10th, 1892. Cyst wall firmly adherent to peritoneum in front. Many loculi, and the hand had to be inserted into the tumor to break up the different compartments. The pedicle was the width of the hand, and was fastened with quilted silk sutures. A large, solid portion of the base of the tumor completely filled Douglas' pouch, and had to be carefully enucleated, leaving this space quite raw and bleeding. A pair of sharp forceps was pushed from the lowest point of this Douglas' pouch into the vagina, and the cavity of the pelvis irrigated from above through this sinus into the vagina. Full eighteen yards of a two-inch iodoform gauze were packed into this cavity, after passing one end of it into the vagina. The temperature and pulse remained at about 100°. There was never a bad symptom. The gauze was gradually removed from the vagina. The drainage was kept up in this way for two weeks longer. She was discharged cured on December 31st, 1892.

6. *Ovarian, or parovarian tumors* which have such *extensive attachments*, and so many adhesions in the true pelvis, that it seems utterly futile to attempt a complete removal—such cases as have compelled the abdominal surgeon in the past to sew the lower zone of these cysts, after amputating the upper zone, to the edges of the abdominal wound. Such a case can be treated far more scientifically by passing the scissors or trocar through its base, after removing the upper part, directly into the vagina.

Manner of Drainage into Vagina.—Prepare the patient as for the usual operation through the abdominal wall. Always have the vagina aseptic by means of soap and water, and creolin or bi-

chloride. If the cervix uteri shows signs of erosion, or if there is considerable discharge from the cervical canal, then divulse, curette, and paint the endometrium and cervical canal with fifty-per-cent solution of carbolic acid. Then, after the tumor has been removed, and it seems best to drain through the vagina, pass the first and second fingers of one hand into the aseptic vagina and up against Douglas' pouch. Press against these fingers with the other hand, thus locating them. Then, avoiding the ureters and blood vessels, pass scissors or an Emmet trocar from above downward between the two fingers in the posterior fornix of the vagina. Then with a pair of forceps stretch this opening until a finger can be easily passed through. Irrigate from above downward with sterilized hot water, dry with sponge or cotton, and with a pair of small dressing forceps pass the end of a four-inch-wide gauze bandage through the opening from above downward into the vagina. If there is an abscess cavity in the broad ligament, pack this cavity and sew it up with a running catgut stitch. Thus we can completely shut off the peritoneal cavity from the gauze or the débris of the cyst wall. If there is simply a large, unhealthy pedicle, then pack around it, etc. If the drainage is for a free oozing of bloody serum, only a small piece of gauze should be used. Later, after the abdominal wound is closed, pack the vagina with sterilized gauze. If there is a temperature and pulse to cause anxiety, remove the vaginal packing of gauze and draw out the gauze from the abdominal cavity for a few inches, and a free drainage will follow, and the threatening symptoms will subside. At the expiration of eight, or twelve days at most, the last of the abdominal gauze should be withdrawn. If pus still passes from the sinus, introduce a drainage tube in the usual manner and fasten *in situ* with silver sutures.

